

## INTRODUCTION

MICROSCREEN is written in Radio Shack TRS-80 BASIC (16K Level II or 32K disk). When loaded under disk BASIC, it takes full advantage of random access files for rapid screen storage and retrieval. MICROSCREEN is designed to be a support program for MICROSKETCH II. Screens created using MICROSKETCH II may be further manipulated using MICROSCREEN.

MICROSCREEN has the capability of storing up to ten screens in memory simultaneously. Any combination of these screens may be loaded continuously to produce animated motion. MICROSKETCH II can be used to draw the screens. Only the parts that move need to be redrawn. The Main System or the Automatic Pattern Designer Subsystem of MICROSKETCH may be used to produce a series of patterns which grow or change in interesting ways. After each screen is produced, it is stored on tape or disk, so that it may be loaded into MICROSCREEN. MICROSCREEN can load screens from main memory at a rate of up to 16 per second or as slowly as the user desires. MICROSCREEN retains many of the MICROSKETCH features such as screen reversal, screen rotation, 32 characters per line, a programable command, "Continuous" Mode, automatic repeat, saving and loading to tape, disk or main memory, etc. The programable command can contain up to 243 single character commands including loading screens from main memory, pauses of varying length, reversing the screen, switching to 32 characters per line and back, clearing the screen and rotating the screen up, down, left or right at varying rates.


Since the programable command string and all ten screens saved in main memory are stored within the MICROSCREEN code itself, saving MICROSCREEN will cause the screens and command string to be immediately available the next time MICROSCREEN is loaded. Instructions are included below to delete most of the program so that a skeleton program containing only the desired screens plus the screen loading commands are retained. This may then be used to form the basis for other programs utilizing the instant screen loading capability.

MICROSCREEN is available from INTERNATIONAL DATA SERVICES, 340 West 55th St., New York, N.Y. 10019 (212)765-8610.

## LOADING AND DEMO INSTRUCTIONS

To load the program, rewind the tape to the beginning, type "CLOAD" and press play. (Disk users must first type 'CMD"T'.) If any difficulty is encountered, try loading the backup copy on side B. When the program is through loading, disk users may save the program on disk by typing 'SAVE"SCREEN"'. Type "RUN" and a program identification message will appear. To continue, press any key. The screen will clear and the message "READY FOR COMMANDS" will appear, indicating that the program is now ready to receive commands. Ten demo screens are included in MICROSCREEN. They may be loaded by typing 0, 1, 2, etc. For a spectacular moving display, excellent for use as a demonstration, type "CG".

The user may exit the program by typing "Q" under the main system or <BREAK> at any time. Screens which were previously saved in memory will not be lost even if "run" is typed.



NOTE: Because of numerous machine language subprograms embeded within the MICROSCREEN code, the program listing may look like a "bad load". The best way to tell is to RUN the program or to list the last line (type "LIST65050").

## COMMANDS

- , - Rotate Screen Left.
- . - Rotate Screen Right.
- A - Rotate Screen Up.
- V - Rotate Screen Down.
- X - Expand (Switch to 32 characters/line). (To switch back to 64 characters /line, type ~~<CLEAR>~~ or ~~","~~).
- ; or <CLEAR> - Clear screen. <sup>↖</sup> "U"
- R - Reverse video (press following <CLEAR> to "white out the screen.") Only the graphics characters and spaces are affected by this command.
- G (Go) - Execute command string (User programable command). Edit line 320 to program this command. Any combination of up to 243 one character commands may be used. use ";" as the clear command and <SPACE> characters to insert pauses.
- C (Continuous) - Switch to Continuous Mode. Used preceeding any combination of single charcter commands will cause the commands to repeat. The Continuous Mode may be terminated by pressing the <SPACE BAR>.
- CL - Continuously Load. Between 1 and 10 screens in main memory may be loaded continuously at user selectable rates.
- SD - Save screen on disk.
- LD - Load screen from disk.
- ST - Save screen on tape.
- LT - Load screen from tape.
- S0, S1,...,S9 - Save screen in memory locations 0, 1,...,9.
- 0, 1,...,9 - Load screen from memory locations 0, 1,...,9.
- Q (Quit) - Exit program.

## USING THE SCREEN LOADING ROUTINES AS SUBPROGRAMS

MICROSCREEN stores the ten screens in 50 comment statements, one screen per five comments at the end of the program. These comments occupy line numbers 65001 thru 65050. One very useful feature of MICROSCREEN is that once the screens are loaded, it is a very simple matter to delete all but the screen loading portion of the program, and to then load the screens from another BASIC program. To do this, delete line numbers 10, 60 and 170 thru 920. This makes an additional 4K available for a user program to be entered or merged. The remaining portion of MICROSCREEN may still be run, but only the ten screen loading commands (the number keys 0 thru 9) are still active. The code neccessary to execute these commands is contained in line 80:

80 GOSUB 90: S=VAL(A\$): GOSUB 140: GOTO 80

"GOSUB 90" executes an "INKEY\$" loop to return the one character command string in A\$. The numeric equivalent of this string is assigned to S, and "GOSUB 140" causes the actual screen to be loaded. The user program may be entered between lines 166 and 64999. A "GOTO" to the first line of the user program should be inserted at line 60. Lines 70 and 80 may then be deleted.

If fewer than ten screens are needed by the user generated program, additional memory may be made available by deleting the unnecessary screen storage comments. For example, if we wish to retain only four screens, the screens should be loaded into memory locations 0, ~~1~~, ~~2~~ and ~~3~~. Line numbers 65021 thru 65050 may then be deleted, making another 6330 bytes available (1055 bytes per screen).  
1, 2, 3 and 4

Line 20 defines all variables to be integers by default (DEFINT A-Z), but this may be changed by the user without affecting the operation of the screen loading subprograms. Line 20 also assigns "DS" a value of -1 if MICROSCREEN was loaded under Disk BASIC.

To load a screen, from a user generated program, set "S" equal to the number of the screen to be loaded and then "GOSUB 140". The following variables are used internally by the screen loading subprograms: A, A\$, AA, AR, DS, LM, UA, XX!, Z, ZO and ZZ.

#### PROGRAM MESSAGES AND PROMPTS (Listed Alphabetically):

"BAD FILE NAME" (Disk BASIC only) - An invalid file name was entered in response to the "DISK FILE NAME" prompt.

"DISK FILE NAME?" (Disk BASIC only) - Enter a file name under which screens are to be loaded or saved. A drive number preceeded by a colon (:) may be appended. Default = "SKETCH2/SCR".

"DISK FULL" (Disk BASIC only) - No more room on the disk. Use another disk, a different file name or a smaller disk record number.

"FILE NOT FOUND" (Disk BASIC only) - An attempt was made to load from a non-existent file.

"HOW FAST (0 IS MAX)?" - Determines the rate at which screens are to be continuously loaded. Default = 50.

"HOW MANY SCREENS?" - Enter the number of screens to be loaded. Only the last ten screens loaded are retained. Default = 1.

"INVALID DRIVE NUMBER" (Disk BASIC only) - A non-existent disk drive number was appended to the file name.

"MICROSCREEN / COPYRIGHT 1979, INTERNATIONAL DATA SERVICES" - Identification message. Displayed only when the program is first RUN. Press any key to continue. An attempt to delete this message may result in program

malfunction.

"NOT DISK BASIC" (Level II only) - A disk command was entered under Level II BASIC.

"POSITION TAPE: READY?" - The tape recorder motor is turned on to allow the tape to be positioned without unplugging the remote plug. Press <ENTER> after the tape has been positioned.

"PRESS PLAY" - No response necessary except to press the play button on the recorder.

"PRESS RECORD: READY?" - Press <ENTER> after tape has been positioned and the record and play buttons have been pressed.

"READY FOR COMMANDS" - Displayed only when program is first run, immediately following the identification message. Any of the MICROSCREEN commands may now be entered.

"STARTING DISK RECORD NUMBER?" (Disk BASIC only) - Enter a record number which corresponds to a previously saved screen. If more than one screen is to be loaded, enter the first record number of the series.

"STARTING SCREEN NUMBER" - If only one screen is to be saved or loaded, enter that screen number. If more than one are to be saved or loaded, enter the lowest screen number of the sequence.